

REMARKS

This application has been carefully reviewed in light of the Office Action dated September 24, 2003. Claims 1 to 4, 8 to 15, 19 to 45, 47 and 48 are in the application, of which Claims 1, 12, 26, 36, 47 and 48 are the independent claims. Claims 26 to 45 were withdrawn from consideration pursuant to a restriction requirement; and Claims 11, 22, 23 and 25 were withdrawn from consideration pursuant an election of species requirement. Claims 1 to 4, 8 to 15 and 19 to 45 have been amended herein; and Claims 47 and 48 have been newly-added. Reconsideration and further examination are respectfully requested.

Claims 1 to 4, 8 to 10, 12 to 15, 19 to 21 and 24 were rejected under 35 U.S.C. § 103(a) over Japan 11-200090 (Japan '090) in view of U.S. Patent No. 6,172,902 (Wegrove). Reconsideration and withdrawal of the rejection is respectfully requested.

The present invention as recited by Claim 1 concerns a structure which includes a substrate; a plurality of electroconductive layers formed on a surface of the substrate; a layer containing aluminum oxide covering the plurality of electroconductive layers and a surface of the substrate where no electroconductive layer is formed; and a plurality of pores formed in the layer containing aluminum oxide. The plurality of pores is disposed above the plurality of electroconductive layers and the surface of the substrate where no electroconductive layer is formed, with a part of the layer containing aluminum oxide provided under the plurality of pores. The layer containing aluminum oxide provided between the bottom of the pores disposed above the electroconductive layer and the electroconductive layer includes a material forming the electroconductive layer. A material different from aluminum oxide is filled in at least one pore disposed above the electroconductive layer, and another material different from aluminum oxide is filled in at least one pore disposed above the surface of the substrate where no electroconductive layer is formed.

The present invention as recited by Claim 12 concerns a structure which includes a substrate; a electroconductive layer formed on a surface of the substrate, with the electroconductive layer being patterned; a layer containing aluminum oxide covering the electroconductive layer and a surface of the substrate where no electroconductive layer is formed;

and a plurality of pores formed in the layer containing aluminum oxide. The plurality of pores is disposed above the electroconductive layer and the surface of the substrate where no electroconductive layer is formed. An electroconductive path is provided between the electroconductive layer and the bottom of the pores disposed above the electroconductive layer. A part of the layer containing aluminum oxide is provided under the plurality of pores. The layer containing aluminum oxide provided between the electroconductive layer and the bottom of the pores disposed above the electroconductive layer includes a material forming the electroconductive layer. A material different from aluminum oxide is filled in at least one pore disposed above the electroconductive layer, and another material different from aluminum oxide is filled in at least one pore disposed above the surface of the substrate where no electroconductive layer is formed.

The present invention as recited by Claim 47 concerns a structure which includes a substrate; a plurality of electroconductive layers formed partially on a surface of the substrate; and a layer having a plurality of columnar parts formed on a surface of the substrate where no electroconductive layer is formed and on the plurality of electroconductive layers. At least one columnar part is disposed above one of the plurality of electroconductive layers, and at least one columnar part is disposed above the surface of the substrate where no electroconductive layer is formed. The columnar part disposed above the electroconductive layer includes a material different from that of the columnar part disposed above the surface of the substrate where no electroconductive layer is formed.

Thus, according to a feature of the invention as recited by Claims 1, 12 and 47, (i) a material different from aluminum oxide is filled in at least one pore disposed above the electroconductive layer, and another material different from aluminum oxide is filled in at least one pore disposed above the surface of the substrate where no electroconductive layer is formed (Claims 1 and 12); or (ii) a columnar part disposed above the electroconductive layer includes a material different from that of a columnar part disposed above the surface of the substrate where no electroconductive layer is formed (Claim 47).

Japan '090 and Wegrowe, either singly or in combination, are not seen to teach or suggest the foregoing feature. The Office Action concedes that Japan '090 does not disclose a plurality of electroconductive layers or a patterned electroconductive layer; and Wegrowe merely describes filling his pores with a single ferromagnetic material. See Examples 1 to 3 of Wegrowe.

The Office Actions dated September 13, 2002, and March 11, 2003, took the position that the subject matter of filling one material in pore(s) above a conductive layer and filling a different material in pore(s) above a non-conductive region is not enabled.

In this regard, Applicants respectfully submit that one of ordinary skill in the art could readily make and use the claimed invention from the disclosures in the specification coupled with information known in the art without undue experimentation, and that there has been no showing of any evidence or reason to the contrary. See MPEP § 2164.

Various pore-filling materials that might be used to fill the pores above the non-conductive region were known in the art. For example, U.S. Patent No. 5,165,991 (Fukuda), describes filling pores with low dielectric substances. See col. 5, line 58 to col. 6, line 6 of Fukada. This U.S. patent is cited in the accompanying Information Disclosure Statement.

The present invention as recited by Claim 48 concerns a structure which includes a substrate; a plurality of electroconductive layers formed partially on a surface of the substrate; and a layer having a plurality of columnar parts formed on a surface of the substrate where no electroconductive layer is formed and on the plurality of electroconductive layers. At least one columnar part is disposed above one electroconductive layer, and at least one columnar part is disposed above another electroconductive layer. The columnar part disposed above the one electroconductive layer includes a material different from that of the columnar part disposed above the other electroconductive layer.

Japan '090 and Wegrowe, either singly or in combination, are not seen to teach or suggest the feature of a columnar part disposed above one electroconductive layer and a columnar part disposed above another electroconductive layer, where the columnar part disposed

above the one electroconductive layer includes a material different from that of the columnar part disposed above the other electroconductive layer.

In light of the above, Applicants conclude that the applied documents do not teach or suggest the claimed invention, and it is respectfully requested that the Section 103 rejection be withdrawn.

With regard to the election of species requirement, at least Claims 1 and 12 are believed to be generic claims, since each of these claims comprehends within its confines the organization covered in each of the species. As such, Applicants submit that they are entitled to the allowance of Claim 11 upon the allowance of Claim 1, and the allowance of Claims 22, 23 and 25 upon the allowance of Claim 12. See MPEP § 806.04(d).

With regard to the restriction requirement, non-elected method Claims 26 to 45 have been amended to contain all of the features of elected product claims. Accordingly, Applicants respectfully request re-joinder of these claims pursuant to MPEP § 821.04.

No other matters being raised, it is believed that the entire application is fully in condition for allowance, and such action is courteously solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



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